

CLAIMS

What is claimed is:

1. A liquid electrophotographic image forming apparatus including a transfer medium, a photosensitive medium that transfers a toner image onto the transfer medium, a charger that charges the photosensitive medium to a predetermined potential, a laser scanning unit that forms an electrostatic latent image by radiating light onto the surface of a charged photosensitive medium, a developing unit that develops the electrostatic latent image with toner, and a secondary transfer roller that transfers the toner image transferred onto the transfer medium onto a sheet of paper, the apparatus comprising:

a liquid carrier depositing unit that is arranged at a forward direction of the secondary transfer roller at a paper feed path and deposits a predetermined amount of a liquid carrier on the sheet of paper.

2. The apparatus of claim 1, wherein the liquid carrier depositing unit comprises:
a depositing roller that deposits the liquid carrier on the sheet of paper; and
a pressing roller that supports the sheet of paper that passes between the pressing roller and the depositing roller.

3. The apparatus of claim 2, wherein the depositing roller comprises:
an internal roller that absorbs the liquid carrier; and
a porous film that surrounds the outer circumference of the internal roller.

4. The apparatus of claim 3, wherein the internal roller is a sponge-material having a plurality of predetermined pore sizes formed thereon.

5. The apparatus of claim 2, wherein the pressing roller is a rubber roller.

6. The apparatus of claim 1, wherein the liquid carrier depositing unit further comprises a brush that contacts at least one side of the sheet of paper and deposits the liquid carrier on the sheet of paper.

7. The apparatus of claim 6, wherein the liquid carrier depositing unit further comprises upper and lower plates that form a path through which the sheet of paper passes, and the brush contacts the sheet of paper through a slit formed in at least one of the upper or lower plate.

8. The apparatus of claim 7, wherein the slit is approximately perpendicular to a direction in that the sheet of paper is transferred.

9. The apparatus of claim 6, wherein the liquid carrier depositing unit further comprises a container to store the liquid carrier that is supplied to the brush.

10. A liquid electrophotographic image forming apparatus comprising:
a unit depositing an amount of a liquid carrier on a print medium before an image is transferred onto the print medium in order for the print medium to have a predetermined dielectric constant regardless of the dielectric constant of the print medium.

11. The apparatus of claim 10, wherein the unit depositing the liquid carrier on the print medium, comprises:
a first roller depositing the liquid carrier on a print side of the print medium; and
a second roller pushing the print medium towards the first roller, wherein the first and second rollers guide the print medium in a direction towards to transfer an image onto the print medium.

12. The apparatus of claim 11, wherein the first roller comprises:
an interior roller formed of a sponge-like material supported by a rotational shaft; and
a porous film surrounding the outer circumference of the interior roller, wherein the internal roller releases the liquid carrier into pores of the porous film when the internal roller is pressed by the second roller pushing the print medium towards the first roller.

13. The apparatus of claim 12, wherein the porous film is a polyester film having a thickness of approximately 5-50 μm and the size of each pore is less than approximately 0.2 μm .

14. The apparatus of claim 12, wherein the second roller is comprised of a rubber material.
15. The apparatus of claim 12, wherein the second roller comprises the same structure as the structure of the first roller.
16. The apparatus of claim 12, wherein the rotational shaft is rotated by a motor in the direction towards the transfer roller to transfer the image onto the print medium.
17. The apparatus of claim 10, wherein the unit depositing the liquid carrier on the print medium, comprises
 - a first plate having a slit formed perpendicular to a direction in which the print medium is transferred; and
 - a second plate located parallel to the first plate, wherein the first and second plates are located on opposite sides of the transfer belt and the print medium passes between the first and second plates towards the transfer roller to transfer the image onto the print medium.
18. The apparatus of claim 17, further comprising an instrument located in the slit of the first plate, wherein a first end of the instrument contacts the print medium and a second end of the instrument is located inside a container of liquid carrier and transfers the liquid carrier to the first end of the instrument to deposit the liquid carrier on the print medium.
19. The apparatus of claim 18, wherein the liquid carrier is transferred to the first end of the instrument by a capillary force.
20. The apparatus of claim 19, wherein the instrument located in the slit is a brush.